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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/057,502	04/09/1998	EIICHI SANO	009683-329	6476
21839	7590	09/06/2005	EXAMINER	
BUCHANAN INGERSOLL PC (INCLUDING BURNS, DOANE, SWECKER & MATHIS) POST OFFICE BOX 1404 ALEXANDRIA, VA 22313-1404			NGUYEN, LAM S	
			ART UNIT	PAPER NUMBER
			2853	

DATE MAILED: 09/06/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

09/057,502

Applicant(s)

SANO ET AL.

Examiner

LAM S. NGUYEN

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 27 June 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 3,6-8,11,14-16,26,28,29,34,35,37 and 39-41 is/are pending in the application.
- 4a) Of the above claim(s) 6,7,11,14-16,28,29,35,37,40 and 41 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 3,8,26,34 and 39 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 09 April 1998 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

### DETAILED ACTION

In response to the restriction requirement, the applicant elected claims 3, 8, 26, 34, and 39 for further examination. As a result, claims 6, 7, 11, 14-16, 28-29, 35, 37, 40, and 41 are withdrawn from further prosecution.

### DETAILED ACTION

#### *Claim Rejections - 35 USC § 102*

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

1. Claim 39 is rejected under 35 U.S.C. 102(e) as being anticipated by Kimura et al. (US 6270199).

Kimura et al. discloses an ink jet printer ejecting a plurality of kinds of ink droplets of different sizes from a single nozzle depending upon data to be printed (*FIG. 19A-C*), thereby forming an image on a prescribed recording medium using dots of sizes corresponding to the sizes of the ink droplets, comprising:

an ink jet head for ejecting an image forming droplet and a smoothing droplet from a single nozzle based on data to be printed (*column 5, lines 35-57: To perform a smoothing operation, an ejection outlet selectively ejects droplets having different sizes corresponding to the sizes of the bubbles. In Tables 1-2 and FIG. 14A-B show that by turning the heaters 2-1, 2-2 ON or OFF, the ejection amount is controlled. In other words, different size ink droplets are*

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*ejected from the same nozzle), the smoothing droplet being smaller than the image forming droplet, thereby printing dots of sizes corresponding to the sizes of the ink droplets on a prescribed recording medium (FIG. 19A-C: The biggest dots are the image forming dots and the smaller dots are the smoothing dots),*

a smoother for performing a smoothing process using the smoothing droplet to form a smoothing dot (*FIG. 19A-C: The smaller dots are the smoothing dots*), wherein the distance between a center of the smaller size smoothing dot and a center of the image forming dot is smaller than the pitch of the image forming dot (*FIG. 19A-C: The distance from the center of a smaller dot to the center of an adjacent biggest dot is smaller than the pitch which is the distance between the centers of the adjacent biggest dots*), and

a controller for controlling the smoother, thereby maintaining constant the speed of ejection of the ink droplet forming the smoothing dot and changing the timing of ejection of the ink droplet forming the smoothing dot (*FIG. 19B: Since the same voltage 24V is applied to eject the drops that form the small dots having the same size, the ejection speed of the drops forming these small dots is constant. Moreover, since each small dot is not located at the center of a pixel like the big dot, the ejection timing of the drops forming the small dots is changed respectively to the ejection timing of the drops forming the big dots*)

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 3, 8, 26, 34, and 39 are rejected under 35 U.S.C. 103(a) as being unpatentable over Koitabashi et al. (US 6325492) in view of Kimura et al. (US 6270199).

Koitabashi et al. discloses an ink jet printer ejecting a plurality of kinds of ink droplets of different sizes depending upon data to be printed (*FIG. 43*), thereby forming an image on a prescribed recording medium using dots of sizes corresponding to the sizes of the ink droplets (*FIG. 43*), comprising:

an ink jet head for ejecting an image forming droplet and a smoothing droplet based on data to be printed, the smoothing droplet being smaller than the image forming droplet, thereby printing dots of sizes corresponding to the sizes of the ink droplets on a prescribed recording medium (*FIG. 43: The image forming dots are the blank dots and the smoothing dots are the smaller ones*);

a smoother for performing a smoothing process using the smoothing droplet to form a smoothing dot, wherein the distance between a center of the smaller size smoothing dot and a center of the image forming dot is smaller than the pitch of the image forming dot (*FIG. 43: The distance from a center of a shaded dot to a center of an adjacent blank dot is shorter than the pitch of the blank dots (360 DPI)*).

Koitabashi et al. does not disclose wherein said smaller dots and said image forming dots are ejected from a single nozzle and a controller for controlling the smoother, thereby maintaining constant the speed of ejection of the ink droplet forming the smoothing dot and changing the timing of ejection of the ink droplet forming the smoothing dot.

Kimura et al. discloses a method of performing a smoothing operation using an ink jet

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head capable of ejecting a smoothing dot that is smaller than a forming image dot, wherein the smoothing dot and the forming image are ejected from a single nozzle (*column 5, lines 35-57: To perform a smoothing operation, an ejection outlet selectively ejects droplets having different sizes corresponding to the sizes of the bubbles. FIG. 19C: The smaller dots as smoothing dots are arranged around the edge of the biggest dots - the forming image dots*) and a controller for controlling the smoother, thereby maintaining constant the speed of ejection of the ink droplet forming the smoothing dot and changing the timing of ejection of the ink droplet forming the smoothing dot (*FIG. 19B: Since the same voltage 24V is applied to eject the drops that form the small dots having the same size, the ejection speed of the drops forming these small dots is constant. Moreover, since each small dot is not located at the center of a pixel like the big dot, the ejection timing of the drops forming the small dots is changed respectively to the ejection timing of the drops forming the big dots*).

Therefore, it would have been obvious for one having ordinary skill in the art at the time the invention was made to modify the printing process in the printing apparatus disclosed by Koitabashi et al. such that ejecting the smaller smoothing dots and the image forming dots from the same single nozzle in the smoothing process as disclosed by Kimura et al. The motivation for doing so would have been to achieve high precision in size and desired positions of dots so the character and graphic pattern edges can be smoothly and reliably reproduced to improve the print quality as taught by Kimura et al. (*column 20, lines 44-50*).

**Koitabashi et al. also discloses the following claimed invention:**

**Referring to claim 3, 26:** wherein in said timing control, the timing of applying signal voltage to print said smaller dot is controlled (*column 27, lines 64-67*).

**Referring to claim 8:** further comprising determination means for determining a direction of the printing position of said smaller dot/smoothing dots, said controller controlling the printing position of said smaller dot/smoothing dots according to the determination (*column 26, lines 6-17*).

**Referring to claim 34:** wherein said smaller dot and said image forming dot are ejected during a single scan (*FIG. 47-56*).

### ***Response to Arguments***

- Applicant's arguments filed 03/15/2005 have been fully considered but they are not persuasive.

In response to the applicant's argument that neither Koitabashi nor Kimura disclose controlling the position of a smoothing dot by maintaining/changing the ejection amount of ink droplets, and not changing/changing the timing of ejection of ink droplets, the examiner cites as follows:

First of all, the claim language of claim 39 does not define that by maintaining constant the speed of ejection of the ink droplet forming the smoothing dot and changing the timing of ejection of the ink droplet forming the smoothing dot, the position of the smoothing dot is controlled. Therefore, the argument is commensurate in scope with the claim language.

Secondly, as discussed above, Kimura et al. in FIG. 19B discloses that the position of the smoothing/smaller dots is controlled to exactly fill the blank space between the image forming/big dots. In order to achieve that the ejection speed of all small drops has to be the same and the timing ejection of all small dots has to be changed or different from the timing ejection of the big dots. In fact, since the same voltage 24V is applied to eject the drops that form the

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small dots having the same size, the ejection speed of the drops forming these small dots is constant. Moreover, since each small dot is not located at the center of a pixel like a big dot, the ejection timing of the drops forming the small dots is changed respectively to the ejection timing of the drops forming the big dots.

- Applicants' election (filed on 06/27/2005) with traverse is acknowledged. The traversal is on the ground that the searches would be co-extensive and would not unduly burden the examiner. This is not found persuasive because burden is not only based upon searches being co-extensive. Examination and analysis for determination of patentability creates burden.

### ***Conclusion***

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.



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Any inquiry concerning this communication or earlier communications from the examiner should be directed to LAM S. NGUYEN whose telephone number is (571)272-2151.

The examiner can normally be reached on 7:00AM - 3:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, STEPHEN D. MEIER can be reached on (571)272-2149. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

LN  
09/02/2005

  
HAI PHAM  
PRIMARY EXAMINER